

What is claimed is:

1. A mezzanine-type electrical connector, comprising:
 - a first connector half for mounting on a first circuit substrate, the first connector half comprising a first connector body and a first electrically-conductive member mounted in a slot formed in the first connector body for conducting electrical power, the first electrically-conductive member comprising a body portion, attachment features electrically and mechanically coupled to the body portion for electrically and mechanically coupling the first electrically-conductive member to a plurality of locations on the first circuit substrate, and mating features electrically and mechanically coupled to the body portion; and
 - a second connector half for mounting on a second circuit substrate and mating with the first connector half, the second connector half comprising a second connector body and a second electrically-conductive member mounted in a slot formed in the second connector body for conducting electrical power, the second electrically-conductive member comprising a body portion, attachment features electrically and mechanically coupled to the body portion of the second electrically-conductive member for electrically and mechanically coupling the second electrically-conductive member to a plurality of locations on the second circuit substrate, and mating features electrically and mechanically coupled to the body portion of the second electrically-conductive member, wherein the mating features of the second electrically-conductive member engage the mating features of the first electrically-conductive member when the first and second connector halves are mated.
2. The electrical connector of claim 1, wherein the attachment features of the first electrically-conductive member comprise a first plurality of attachment tabs, the mating features of the first electrically-conductive member comprise a plurality of mating tabs, the attachment features of the first electrically-conductive member comprise a second plurality of attachment tabs, and the mating features of the second electrically-conductive member comprise a contact blade.
3. The electrical connector of claim 2, wherein the first plurality of attachment tabs and the plurality of mating tabs are mechanically coupled to the body portion of the first

electrically-conductive member in a staggered arrangement so that each of the first plurality of attachment tabs is offset from each of the plurality of mating tabs.

4. The electrical connector of claim 2, wherein the body portions of the first and second electrically-conductive members each have a plurality of slots formed therein.

5. The electrical connector of claim 1, wherein the first connector half further comprises a first plurality of signal contacts mounted in the first connector body for conducting electrical signals, the second connector half further comprises a second plurality of signal contacts mounted in the second connector body for conducting electrical signals, and each of the first plurality of signal contacts mates with a respect one of the second plurality of signal contacts when the first and second connector halves are mated.

6. The electrical connector of claim 5, wherein the second connector body comprises a barrier formed from a dielectric material and located between the second electrically-conductive member and the second plurality of signal contacts, and the first connector body has a recess formed therein for receiving the barrier when the first and second connector halves are mated.

7. The electrical connector of claim 1, wherein the first connector half comprises three of the first electrically-conductive members, and the second connector half comprises three of the second electrically-conductive members.

8. The electrical connector of claim 5, wherein the second connector half comprises three of the second electrically-conductive members, the second connector body comprises a plurality of barriers formed from a dielectric material, at least one of the plurality of barriers is located between adjacent ones of the second electrically-conductive members, and at least one of the plurality of barriers is located between one of the second electrically-conductive members and the second plurality of signal contacts.

9. The electrical connector of claim 3, wherein a surface of the first connector body that defines the slot has a plurality of projections formed thereon, the projections being positioned so that each of the projections contacts the body portion of the first electrically-conductive member at a location between locations on the body portion of the first

electrically-conductive member where the body portion of the first electrically-conductive member adjoins a respective one of the first plurality of attachment tabs and a respective one of the mating tabs.

10. The electrical connector of claim 2, wherein a total number of the mating tabs is one less than a total number of the first plurality of attachment tabs.

11. The electrical connector of claim 2, wherein:

the first connector half further comprises a first plurality of fusible elements each being fixed to a respective one of the first plurality of attachment tabs for electrically and mechanically coupling the first plurality of attachment tabs to the plurality of locations on the first circuit substrate; and

the second connector half further comprises a second plurality of fusible elements each being fixed to a respective one of the second plurality of attachment tabs for electrically and mechanically coupling the second plurality of attachment tabs to the plurality of locations on the second circuit substrate.

12. The electrical connector of claim 2, wherein adjacent ones of the plurality of mating tabs engage opposing sides of the contact blade when the first and second connector halves are mated.

13. A connector system for electrically coupling a first and a second circuit substrate, comprising:

a receptacle for mounting on the first circuit substrate, the receptacle comprising a receptacle body, a first power contact strip mounted in the receptacle body for electrically contacting a first plurality of electrical contact points on the first circuit substrate and conducting electrical power, and a first plurality of signal contacts mounted in the receptacle body for electrically contacting a second plurality of electrical contact points on the first circuit substrate and conducting electrical signals; and

a plug for mounting on the second circuit substrate and mating with the receptacle, the plug comprising a plug body, a second power contact strip mounted in the plug body for electrically contacting a first plurality of electrical contact points on the second circuit substrate and conducting electrical power, and a second plurality of

signal contacts mounted in the plug body for electrically contacting a second plurality of electrical contact points on the second circuit substrate and conducting electrical signals, wherein the first power contact strip contacts the second power contact strip and each of the first plurality of signal contacts contacts a respective one of the second plurality of signal contacts when the receptacle and the plug are mated.

14. The system of claim 13, wherein:

the first power contact strip comprises a body portion, a plurality of mating tabs adjoining the body portion, and a first plurality of attachment tabs adjoining the body portion for electrically contacting the first plurality of electrical contact points; and

the second power contact strip comprises a body portion, a contact blade adjoining the body portion of the second power contact strip for engaging the plurality of mating tabs when the receptacle and the plug are mated, and a second plurality of attachment tabs adjoining the body portion of the second power contact strip for electrically contacting the second plurality of electrical contact points.

15. The system of claim 13, wherein one of the receptacle and plug bodies comprises a barrier formed from a dielectric material and located between one of the first and second electrically-conductive members and one of the first and second pluralities of signal contacts, and the other of the receptacle and plug bodies has a recess formed therein for receiving the barrier when the receptacle and the plug are mated.

16. The system of claim 14, wherein the first plurality of attachment tabs and the plurality of mating tabs are mechanically coupled to the body portion of the first power contact strip in a staggered arrangement so that each of the first plurality of attachment tabs is offset from each of the plurality of mating tabs.

17. The system of claim 14, wherein the body portions of the first and second electrically-conductive members each have a plurality of slots formed therein.

18. A connector system for electrically coupling a first and a second circuit substrate, comprising:

a receptacle for mounting on the first circuit substrate and comprising a receptacle body and a first power contact strip mounted in a slot formed in the receptacle body for conducting electrical power, the first power contact strip comprising a body portion, a plurality of attachment tabs adjoining the body portion for being electrically and mechanically coupled to respective electrical-connection pads on the first circuit substrate, and plurality of mating tabs adjoining the body portion; and

a plug for mounting on the second circuit substrate and mating with the receptacle, the plug comprising a plug body and a second power contact strip mounted in a slot formed in the plug body for conducting electrical power, the second power contact strip comprising a body portion, a plurality of attachment tabs adjoining the body portion of the second power contact strip for being electrically and mechanically coupled to respective electrical-connection pads on the second circuit substrate, and a contact blade adjoining the body portion of the second power contact strip, wherein the mating tabs engage the contact blade when the plug and the receptacle are mated.

19. The connector system of claim 18, wherein the attachment tabs of the first power contact strip and the mating tabs are mechanically coupled to the body portion of the first power contact strip in a staggered arrangement so that each of the attachment tabs of the first power contact strip is offset from each of the mating tabs.

20. The connector system of claim 18, wherein the body portions of the first and second power contact strips each have a plurality of slots formed therein.

21. The connector system of claim 18, wherein the receptacle further comprises a first plurality of signal contacts mounted in the receptacle body for conducting electrical signals, the plug further comprises a second plurality of signal contacts mounted in the plug body for conducting electrical signals, and each of the first plurality of signal contacts contacts a respect one of the second plurality of signal contacts when the receptacle and the plug are mated.

22. The connector system of claim 21, wherein one of the receptacle and plug bodies comprises a barrier formed from a dielectric material and located between one of the first and second power contact strips and one of the first and second pluralities of signal

contacts, and the other of the receptacle and plug bodies has a recess formed therein for receiving the barrier when the receptacle and the plug are mated.

23. The connector system of claim 18, wherein the receptacle comprises three of the first power contact strips, and the plug comprises three of the second power contact strips.

24. The connector system of claim 19, wherein a surface of the receptacle body that defines the slot has a plurality of projections formed thereon, the projections being positioned so that each of the projections contacts the body portion of the first power contact strip at a location between locations on the body portion of the first power contact strip where the body portion of the first power contact strip adjoins a respective one of the attachment tabs of the first power contact strip and a respective one of the mating tabs.

25. The connector system of claim 18, wherein:

the receptacle further comprises a first plurality of fusible elements each being fixed to a respective one of the plurality of attachment tabs of the first power contact strip for electrically and mechanically coupling the plurality of attachment tabs of the first power contact strip to the respective electrical-connection pads on the first circuit substrate; and

the plug further comprises a second plurality of fusible elements each being fixed to a respective one of the plurality of attachment tabs of the second power contact strip for electrically and mechanically coupling the plurality of attachment tabs of the second power contact strip to the respective electrical-connection pads on the second circuit substrate.

26. The connector system of claim 18, wherein adjacent ones of the plurality of mating tabs engage opposing sides of the contact blade when the receptacle and the plug are mated.

27. The connector system of claim 18, wherein a total number of the mating tabs is one less than a total number of the plurality of attachment tabs of the first power contact strip.

28. A mezzanine-type electrical connector, comprising:

a first connector half for mounting on a first circuit substrate, the first connector half comprising a first connector body and a first electrically-conductive member mounted in the first connector body for conducting electrical power from a plurality of locations on the first circuit substrate; and

a second connector half for mounting on a second circuit substrate and mating with the first connector half, the second connector half comprising a second connector body and a second electrically-conductive member mounted in the second connector body for conducting electrical power to a plurality of locations on the second circuit substrate, wherein the second power contact strip contacts the first power contact strip when the first and second connector halves are mated.

29. The electrical connector of claim 28, wherein the first connector half further comprises a first plurality of signal contacts mounted in the first connector body for conducting electrical signals, the second connector half further comprises a second plurality of signal contacts mounted in the second connector body for conducting electrical signals, and each of the first plurality of signal contacts contacts a respect one of the second plurality of signal contacts when the first and second connector halves are mated.

30. The electrical connector of claim 28, wherein:

the first electrically-conductive member comprises a body portion, a plurality of mating tabs adjoining the body portion, and a first plurality of attachment tabs adjoining the body portion for electrically contacting the plurality of locations on the first circuit substrate; and

the second electrically-conductive member comprises a body portion, a contact blade adjoining the body portion of the second power contact strip for engaging the plurality of mating tabs when the first and second connector halves are mated, and a second plurality of attachment tabs adjoining the body portion of the second power contact strip for electrically contacting the plurality of locations on the second circuit substrate.

31. The electrical connector of claim 29, wherein one of the first and second connector bodies comprises a barrier formed from a dielectric material and located between one of the first and second electrically-conductive members and one of the first and second pluralities of signal contacts, and the other of the first and second connector bodies has a

recess formed therein for receiving the barrier when the first and second connector halves are mated.

32. The electrical connector of claim 30, wherein the first plurality of attachment tabs and the plurality of mating tabs are mechanically coupled to the body portion of the first electrically-conductive member in a staggered arrangement so that each of the first plurality of attachment tabs is offset from each of the plurality of mating tabs.

33. The electrical connector of claim 30, wherein the body portions of the first and second electrically-conductive members each have a plurality of slots formed therein.

34. A mezzanine-type electrical connector, comprising:

a first connector half mounted in the first circuit substrate, the first connector half comprising a first connector body and a first power contact strip mounted in the first connector body and comprising a plurality of tabs for conducting electrical power from respective electrical-connection pads on the first circuit substrate by way of solder connections formed between each of the plurality of tabs and the respective electrical-connection pads; and

a second connector half mounted in the second circuit substrate for mating with the first connector half, the second connector half comprising a second connector body and a second power contact strip mounted in the second connector body and comprising a plurality of tabs for conducting electrical power to respective electrical-connection pads on the second circuit substrate by way of solder connections formed between each of the plurality of tabs of the second power contact strip and the respective electrical-connection pads on the second circuit substrate, wherein the second power contact strip contacts the first power contact strip when the first and second connector halves are mated.

35. An electrical device, comprising a first circuit substrate, a second circuit substrate, and an electrical connector system, the electrical connector system comprising:

a first connector half mounted in the first circuit substrate, the first connector half comprising a first connector body and a first power contact strip mounted in the first connector body and comprising a plurality of tabs for conducting electrical power from respective electrical-connection pads on the first circuit substrate by way of

solder connections formed between each of the plurality of tabs and the respective electrical-connection pads; and

a second connector half mounted in the second circuit substrate for mating with the first connector half, the second connector half comprising a second connector body and a second power contact strip mounted in the second connector body and comprising a plurality of tabs for conducting electrical power to respective electrical-connection pads on the second circuit substrate by way of solder connections formed between each of the plurality of tabs of the second power contact strip and the respective electrical-connection pads on the second circuit substrate, wherein the second power contact strip contacts the first power contact strip when the first and second connector halves are mated.

36. The electrical connector of claim 2, wherein each of the plurality of mating tabs comprises a first and a second beam portion each adjoining the body portion of the first electrically-conductive member, and a tab portion adjoin the first and second beam portions.

37. The electrical connector of claim 18, wherein each of the plurality of mating tabs comprises a first and a second beam portion each adjoining the body portion of the first power contact tab, and a tab portion adjoin the first and second beam portions.